

REMARKS/ARGUMENTS

The present Amendment is in response to the Examiner's Office Action mailed February 15, 2005. Claim 6 is amended. Claims 1-16 are now pending in view of the above amendments.

Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, Applicants request that the Examiner carefully review any references discussed below to ensure that Applicants understanding and discussion of the references, if any, is consistent with the Examiner's understanding. Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

Claim Objections

The Office Action objected to claim 6 for grammatical reasons. Claim 6 has been amended as suggested by the Examiner to overcome the objection to claim 6.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-3, 5, 12, and 16 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,318,909 B1 (*Giboney*). Anticipation requires that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The following discussion illustrates *Giboney* does not satisfy *Verdegaal* with respect to claims 1-3, 5, 12, and 16.

Embodiments of the invention relate to compact optical devices. The optical device of Claim 1, for example, requires a housing, at least one optical subassembly substantially disposed within the housing and defining a longitudinal axis and a substrate substantially disposed within the housing and residing in a plane that is substantially perpendicular to the longitudinal axis defined by the at least one optical sub assembly. Claim 1 also requires a connector disposed on

one end of the substrate and mounted on a surface of the substrate in the plane that is substantially perpendicular to the longitudinal axis. One advantage of the orientation of the substrate and of the connector is that the optical device, when mounted to a host bus adapter or other board, occupies relatively less of the board's space compared to conventional optical devices. *See* ¶ [0018].

Giboney, in contrast, does not teach or suggest a connector mounted to a surface of the substrate that resides in a plane that is substantially perpendicular to the longitudinal axis defined by the optical sub assembly, as required by Claim 1. Although the Office Action suggests that *Giboney* teaches a substrate (circuit board 25 in Figure 1A), the connector of this substrate is not mounted to a surface that resides in a plane that is substantially perpendicular to the longitudinal axis defined by the at least one optical sub assembly. Further, the substrate itself is only partially in the plane required by claim 1.

More particularly, a mechanical support 29 taught by *Giboney* is required to support the printed circuit board 25. *See* col. 7, lines 3-20. The mechanical support 29 has two main elements: support element 30 and support element 31. *See Id.* *Giboney* teaches that the mechanical support is L-shaped. *See Id.* This is shown, for example, in Figure 7. *Giboney* also teaches that the support element 31 extends from the support element 30 at a non-zero angle and is preferably orthogonal thereto. *Id.* Thus, if one of the support elements is in a particular plane, then the other support element is not in the same plane.

Because the mechanical support is L-shaped, the printed circuit board 25 is also L-shaped when mounted to the mechanical support 29, as shown in Figure 1A. *Giboney* teaches, in fact, that the board 25 is preferably a flexible printed circuit board to enable the printed circuit board to wrap around the outward-facing surfaces 33 and 34 of the support elements 30 and 31. *See* col 7, lines 30-40.

The portion of the flexible printed circuit board 25 that does not reside in the plane perpendicular to the longitudinal axes of the optical subassembly includes the solder balls 45 constituting the electrical connection of the circuit board 25. *See* col. 10, lines 32-34. Thus, *Giboney* teaches a substrate that resides in two separate planes rather than a plane as required by claim 1. Further, the connection (solder balls 45) of the printed circuit board 25 is not in the plane that is perpendicular to the longitudinal axis of the optical sub assembly in contrast to the requirements of claim 1.

Claim 1 requires a substrate that resides in a plane that is substantially perpendicular to the longitudinal axis defined by the optical subassembly. Claim 1 also requires that a connector be disposed on one end of the substrate and mounted on a surface of the substrate within the plane that is substantially perpendicular to the longitudinal axis. In *Giboney*, both the portion of the substrate mounted to the support member 31 and the connector are parallel to the longitudinal axis defined by the optical subassembly. *Giboney* therefore teaches a substrate that resides in two preferably orthogonal planes as illustrated clearly in Figures 1A, 1B, and 1F. In each Figure, the connector is illustrated as being parallel to the longitudinal axis rather than perpendicular to the longitudinal axis as required by claim 1.

For at least these reasons, *Giboney* does not teach or suggest each and every element of Claim 1 as set forth in the claim 1. Claim 12, which similarly requires a transceiver substrate and a connector connected to the transceiver substrate such that the connector is mounted at a surface of the transceiver substrate in the plane is substantially perpendicular to the longitudinal axes respectively defined by the transmit optical subassembly and the receive optical subassembly, is likewise not taught or suggested by *Giboney* for at least the same reasons. Claims 1 and 12 are believed to be in condition for allowance, which is respectfully requested. The dependent claims 2, 3, 5, and 16 overcome *Giboney* for at least the same reasons and are also believed to be in condition for allowance.

Claim Rejections Under 35 U.S.C. § 103

The Office Action rejected claims 4, 6-11 14 and 15 under 35 U.S.C. § 103 as being unpatentable over *Giboney* in view of *qLogic* ("SANblade: 2-Gbps Fibre Channel to PCI Express Host Bus Adapter," dated 09/03 by qLogic Corporation). The Office Action also rejected claim 13 under 35 U.S.C. § 103 as being unpatentable over *Giboney* in view of *Dwarkin* (United States Patent No. 6,454,470 B1).

Because claims 1 and 12 are believed to be in allowable form for the reasons discussed above, claims 4, 13, 14, and 15, are believed to be in condition for allowance for at least the same reasons.

Claim 6, which requires a transceiver substrate and a connector located on an end of the transceiver substrate, the connector mounted on a surface of the transceiver substrate in the plane is substantially perpendicular to the longitudinal axes respectively defined by the transmit optical

subassembly and the receive optical subassembly, also overcomes *Giboney* in view of *qLogic* for at least the same reasons discussed above. More particularly, neither *Giboney* or *qLogic* teach or suggest a substrate and a connector located on an end of the transceiver substrate such that the connector is mounted on a surface of the transceiver substrate that is in a plane substantially perpendicular to the longitudinal axes of the optical subassemblies.

As noted previously, the substrate taught by *Giboney* resides in two preferably orthogonal planes and the connector of *Giboney* is located in the plane that is parallel to the longitudinal axis rather than, as required by claim 6, perpendicular to the longitudinal axis. As a result, claim 6 overcomes the art of record and is in condition for allowance. Claims 7-11 depend from claim 6 and overcome the cited art for at least this reason.

Conclusion

In view of the foregoing, Applicants believe the claims as amended are in allowable form. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

Dated this 14th day of July 2005.

Respectfully submitted,



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